CfE Higher- Homework 5

Success Criteria

**Make sure you…**

* know and can apply logs rules
* know and can apply the methods for experimental data
* have followed examples in your notes to structure each solution appropriately
* have presented work neatly
* have checked for accuracy

1. Given that $x=log\_{5}3+log\_{5}4$, find algebraically the value of x. (2)
2. a) The variables $x$ and $y$ are connected by a relationship of the form $y=ae^{bx}$ where $a$ and $b$ are constants. Show that there is a linear relationship between $log\_{e}y$ and $x.$ (3)

b) From an experiment some data was obtained. The table shows the data which lies on the line of best fit.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| x | 3.1 | 3.5 | 4.1 | 5.2 |
| y | 21 876 | 72 631 | 439 392 | 11 913 076 |

The variables $x$ and $y$ in the table are connected by a relationship of the form $y=ae^{bx}$. Determine the values of $a$ and $b$. (5)